

CLAIMS

We claim:

1. A method of detecting a target analyte in a sample comprising:
 - a) adding said sample to a detection chamber comprising array of detection electrodes, each comprising
5 a covalently attached capture ligand;
 - b) mixing said sample such that said target analyte binds to said capture ligand to form an assay complex, wherein said assay complex further comprises at least one electron transfer moiety (ETM);
and
 - c) detecting the presence of said ETM using said detection electrodes.
- 10 2. A method according to claim 1 wherein said capture ligand comprises a nucleic acid.
3. A method according to claim 1 wherein each of said detection electrodes further comprise a self assembled monolayer.
4. A method according to claim 1 wherein said mixing is accomplished by applying an AC/DC pulse.
5. A method according to claim 1 wherein said mixing is accomplished through the use of mixing
15 particles.
6. A method according to claim 5 wherein said mixing particles comprise microparticulate matter.
7. A method according to claim 1 wherein said mixing is accomplished through the use of an electrophoretic electrode.
8. A method according to claim 1 wherein each of said detection electrodes is "sunken" or "recessed"
20 with respect to the chamber, such that the flow of said sample past each of said detection electrodes causes said mixing.